REMARKS

Claims 1 to 18 are pending in the application. Claims 1-6, 8, 10 and 12-18 stand rejected under indefiniteness and obviousness grounds.

Claims 7, 9 and 11 contain allowable subject matter. In paragraph 12 of the Action the Examiner indicates that these claims would be allowable if rewritten to overcome the indefiniteness rejections and to include the limitations of the base claim and any intervening claims.

The specification and drawings have also been objected to under various grounds which are addressed herein.

Specification - Objections

The specification has been amended to correct typographical errors and to correct the use of the trademark TEFLON. As indicated in Ullmann's Encyclopedia of Industrial Chemistry, Fifth, Completely Revised Edition, Vol. A10 at page 650 the generic terminology of the tradename TEFLON is said to be "polytetrafluoroethylene." A courtesy copy of this reference is enclosed for the Examiner's review.

In addition, the specification has been amended to conform with the limitations of Claims 6 and 7.

Accordingly, Applicants believe the Examiner's objections relating to the specification have been addressed and corrected and should now be withdrawn.

Drawing - Objections

A replacement drawing for Figure 3 has been submitted with this response. As now illustrated Figure 3 clearly shows the channels in the grooves described in Claims 15-18. In addition, the various profiles of the incorporated channels at the surface of the groove (13) which may be sinusoidal, triangular or rectangular, or mixtures is now clearly illustrated. No new matter has been added since this drawing is essentially a larger scale version of the original Figure 3 submitted with the

AMENDMENTS TO THE DRAWINGS

Please delete Figure 3 and replace the replacement drawing sheet attached hereto.

application filing. Accordingly, Applicant's believe the Examiner's rejection has been overcome and should be withdrawn.

Indefiniteness Rejections

Claims 1-18 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

The Examiner states that in Claim 1 line 2 it is unclear whether "a lateral flow liquid" is also the coating solution or not. The Applicants respectfully submit the lateral flow liquid is clearly defined in the specification at page 3 lines 16-19 as being water having small amounts of inorganic or organic salts (as described in the example). Further on in Claim 1 it states that "the total amount of the coating solution and the total amount of the lateral flow liquid are coated onto the moving web (8)." Therefore Applicant's believe it is clear from the claims as written that the lateral flow liquid and the coating solution are distinct but may be mixed. See Applicants specification at page 5 lines 3-6 for support.

Claim 1 has been amended to correct the antecedent basis for "the curtain" and "the lateral guides".

Claim 5 has been amended to reflect proper form as an independent apparatus claim. Further the "lower end" has been clarified to refer to the lateral guides. This change is supported by page 4 line 24.

Applicants do not believe the term "horizontal line" lacks antecedent basis. Page 4 lines 27-29 of the specification defines "The angle ß between the horizontal line and the side of the protruding edge facing the curtain is from 0° to 90°, in particular from 30° to 90°."

Finally, Claim 14 has been amended to replace the tradename TEFLON with the generic term "polytetrafluoroethylene".

Accordingly, Applicant's believe all the Examiner's indefiniteness rejections have been overcome and should be withdrawn.

35 U.S.C. §101

Claims 5-18 stand rejected as being directed to non-statutory subject matter. As now amended Claim 5 clearly defines an apparatus so Applicants believe this rejection is now moot.

Obviousness Rejections

Claims 1-6, 8, 10 and 15-18 stand rejected as being unpatentable over WO 03/049870 A1 ('870) in view of EP 1023949 A1 ('949).

The Examiner states that '870 teaches a method of curtain coating a moving web with at least one coating solution and with a lateral auxiliary flow of liquid supplied in a groove in the edge guides. She further states the '870 teaches all the features of the invention except coating all liquid on the moving web without separating before application, the height of the guides, the distance between the channels and the depth of the channels. However, the Examiner cites the '949 reference for these teachings by using an edge guide system to apply liquid to a moving web by curtain coating. Applicants respectfully disagree.

The Examiner incorrectly states that Applicants Claims 3 and 4 define the height of the guides in the present invention device. In fact the distances measured in Claims 3 and 4 relate to the protruding edge at the lower end of the lateral guides and the moving web.

Further, the Examiner states that EP '949 Figure 4 shows that all materials (coating and edge liquid) can be applied onto the web without separating before contact. However, the whole content of the reference has to be taken into account. In fact, lines 44 to 50 on page 3 states as follows (translation from German to English language):

> "Preferably a separation device is placed in a position above the impact point of the curtain which separates the border region of the curtain together with the liquid edge. So, only the middle part of the curtain is deposited on the web. This prevents the deposition of the edge liquid on the web. The web may be coated up to the edges with light sensitive coating without the formation of a bead at the border of the coating."

It is well settled that the mere fact that the prior art could be modified to form the invention would not make the modification obvious *unless the prior art suggested the desirability of the modification. In re Laskowski,* 10 USPQ2d 1397, 1398 (Fed. Cir. 1989); *In re Gordon,* 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

The Examiner has not set forth any motivation or suggestion in the cited art which would motivate or suggest to one skilled in the art to make the claimed invention. In fact, EP '949 teaches away from the present invention by discouraging someone skilled in the art to apply all materials (coating and edge liquids) onto the web without separating before contact.

Further, in EP '949, it is indicated that the use of edge liquids with low viscosity leads to flow instabilities of the edge liquids, and as a consequence, to disturbances of the free falling curtain (page 2, lines 44 - 51). Advantageously, the edge liquid has a viscosity that is higher by a factor of 2 to 4 than the viscosity of the coating solutions (page 3, lines 15 - 18). Furthermore, it is preferred that the viscosity of the edge liquid should be higher than 50 mPas, in particular it should be from 50 mPas to 200 mPas) (page 3, lines 25 - 29). It is also preferred that the edge liquid should contain polyvinyl alcohol, polyvinyl pyrrolidone, a copolymer of maleic acid and vinyl methyl ether or a copolymer of maleic acid and butadiene or consist of glycerol (page 3, lines 30 - 33).

Furthermore, the edge liquids are not supplied perpendicular to the extension of the curtain in a groove, but within the extension of the curtain (Figure 4).

Someone skilled in the art would therefore, at the time the invention was made, not have combined the teachings of WO 03/049,870 A1 and EP 1,023,949 A1, because in the present application the edge fluid consists mainly of water (page 3, lines 16 - 19) that is supplied perpendicular to the extension of the curtain (Figure 1). This aspect of the invention is neither taught by either '870 or EP '949 alone or in combination.

Accordingly, the Examiners obviousness rejections are believed to be overcome and should be withdrawn.

Claims 12-14 stand rejected as being unpatentable over WO 03/049870 A1 ('870) in view of EP 1023949 A1 ('949) further in view of U.S. Patent No. 6,454,858 to Oki et al.

The Examiner has asserted that the '870 in view of '949 teaches all the features of the invention claims except the undersurface material of polytetrafluoroethylene or TEFLON. The Examiner now cites Oki as teaching edge guides of materials such as polyvinyl choloride or steel and to make connecting width regulating plates from polytetrafluoroethylene or TEFLON. Applicants respectfully disagree.

Applicants assert that the Examiner is incorrect in stating that Oki indicates to make edge guides (and coating width regulating plates) from polytetrafluoroethylene (column 13, lines 48 - 51). These lines read as follows:

> "The material of the coating width regulating plate and the edge guide **were selected** from stainless steel (SUS), acrylic resin (Acrylic), polyvinyl chloride (PVC) and polytetrafluoroethylene (PTFE)".

The following lines (column 13, lines 52 - 56) however, read as follows:

> "In examples 1 through 6 which were carried out under the conditions satisfying the formula (contact angle of water with coating width regulating plate) > (Contact angle of water with edge guide), coating quality was excellent in every example."

In other words, this means that good coating quality is obtained in the case where the contact angle of water with the coating width regulating plate is higher than the contact angle of water with the edge guide. The contact angle of polytetrafluoroethylene with water is, however, the highest of all the materials listed in column 14, lines 27 - 30. This means that good coating quality is not obtained when the edge guides (including the undersurface) are made from polytetra-fluoroethylene.

This conclusion is supported by the following lines (column 13, lines 57 - 61) which read as follows:

> "Conversely, in Comparative Examples 1 through 6 which were carried out under the conditions of the formula (contact angle of water with coating width regulating plate) < (Contact angle of water with edge guide), strong streaks and uneven thickness of the film edge portions occurred."

This is the experimental proof that good coating quality is not obtained when the edge guides (including the undersurface) are made from polytetra-fluoroethylene, because the contact angle of water with the coating width regulation plate may never be lower than the contact angle of water with the edge guides when the edge guide is made from polytetrafluoroethylene.

In addition, in the case where the coating width regulating plate and the edge guide are made from the same material, coating quality is not good. The following lines (column 13, lines 62 - 67) which read as follows:

> "In Comparative Examples 7 through 10 wherein the material of the edge guide was the same as the material of the coating width regulating plate, i.e. (contact angle of water with coating width regulating plate) = (Contact angle of water with edge guide), weak streaks and uneven thickness at film edge portions occurred."

This is a further experimental proof that good coating quality is not obtained when the edge guides (including the undersurface) and the coating width regulating plates are made from the same material, for example polytetrafluoroethylene.

Someone skilled in the art knows that the coating width regulating plates are very often made of stainless steel. The teaching of Oki therefore discourages someone skilled in the art to make edge guides out of polytetrafluoroethylene, as bad coating quality would be expected.

Further the teaching of Oki is guiding someone skilled in the art to use an edge guide that has a higher contact angle with water than the contact angle of water with the coating width regulating plate, because this combination gives the best coating quality.

Accordingly Applicants believe the obviousness rejections have been overcome and should be withdrawn by the Examiner.

In view of the above arguments and amendment to the claims, Applicant believes that Examiner's objections and indefiniteness rejections have been overcome. No new matter has been added. Applicant submits that this application is now in condition for allowance. Reconsideration of this application and allowance of pending Claims 1-7, 9, 11-14 and 16-18 are hereby requested.

Respectfully submitted,
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section of $<0.001\ nm^2$. Sintering, followed by drawing and heat-setting results in solid or expanded films (depending on process conditions), which are then split into filaments of ca. ≥ 100 dtex.

An alternate process is used to produce finer filaments. A 60% solid dispersion of polytetrafluoroethylene polymer, stabilized with aryl or alkyl polyglycol ethers, is blended with viscose solution (5%). The latter acts as a matrix during early phases of the process. The mixture is filtered and then extruded at room temperature through a multihole spinneret (hole diameter 0.15 mm) into a coagulating bath containing 6% sulfuric acid, 16% sodium sulfate, and 0.3% zinc sulfate. The spinning velocity is about 12 m/min.

After coagulation, the yarn is washed with water at 90 °C, dried at 190 °C, and then raised to 340–360 °C, the temperature at which polymer particles are sintered and the viscose residue degrades and is partially burned. After a brief contact time at 360–390 °C, the yarn is stretched four to eight times its original length.

The resultant continuous-filament yarn has a tenacity of 1.8 cN/dtex and an elongation of 20–30%. The filament mass is 6 dtex. The fibers are brown and can be bleached in boiling sulfuric acid containing nitric acid or by exposure for several days in an air oven. The latter must be done cautiously by raising the temperature stepwise to 350 °C, to avoid exotherms because of the sudden oxidation of the viscose residues.

8.3. Uses

Polytetrafluoroethylene fibers are utilized in woven and nonwoven forms as filter media for aggressive liquids and gases (i.e., strong acids, bases, and oxidizing agents), including air pollution control fabrics. Fibers are also used in gaskets and pump seals because of their chemical resistance and low-friction characteristics. In electrical systems, they are utilized as insulators for wires and components, and as cleaners–wipers in xerographic devices, where their high-temperature and triboelectric characteristics are important. Because of their great chemical stability, these fibers are used as the binder component in asbestos chlor-alkali cell diaphragms. The low-friction characteristics and high length–diameter ratio of the fibers are important in their use as solid lubricants in engineering plastics. Monofils have found application in demisters in the production of mineral acids.

In addition, dispersion of fibers on woven or nonwoven substrates imparts chemical stability to the surface and results in layered composites with excellent dielectric properties and corrosion resistance for utilization in xerography.

Trade Names. Teflon [*98846-34-5*], Teflon FEP [*58516-09-9*], Teflon TFE, Teflon PFA [*71767-39-0*], Tefzel [*25038-71-5*], Tefaire (Du Pont, United States); Goretex (Gore, United States); Polyflon (Daikin Kogyo, Japan); Toyoflon (Toyo Rayon, Japan); Fluon (ICI, Great Britain).

8.4. Toxicology and Occupational Health

Adequate ventilation should be provided during processing of PTFE fibers. At elevated processing temperatures, PTFE fluoropolymer fibers liberate vapors that may be harmful. Generally, adequate ventilation and care to prevent such vapors from being inhaled will provide ample safety. Care should be exercised not to contaminate smoking tobacco with PTFE fibers. A mixture of tobacco and PTFE polymer would be especially hazardous if the mixture were combusted and inhaled in smoking. This can be avoided by not carrying tobacco into areas where it may become contaminated.

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